DRYLAND TARO PRODUCTION

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Abstract

Critical steps of growing a successful crop of dryland taro are discussed. The sequence of steps are pre-plant land preparation, planting, weed control, fertilization, pest control, and harvesting. This article will provide you an excellent basis in producing dryland taro if you are new to taro farming. You will also benefit from specific concepts and improve your existing cultural practices if you are an experienced taro farmer.

Pre-plant Land Preparation

The first step in preparing land for a Chinese taro planting involves the removal of trash. This can be accomplished by:

1) Bulldozing which is fast but expensive.
2) Microbial decomposition which involves mowing and roto-tilling into the soil.
3) Removal with a spring toothed cultivator.

The second step includes plowing, an operation which provides improved drainage but more importantly, aids in weed control. Adequate depth in plowing is indicated by the emergence of orange colored soil which is typically found 12 to 16 inches deep in soils along the Hamakua Coast. It is imperative that upon plowing, no trash remains on the soil surface. Completely covering the trash ensures good weed control, one of the most important considerations in the culture of dryland taro. In addition, it is also important that the plowed soil remains undisturbed for a minimum of 3 to 4 weeks. This will allow adequate time for microbial breakdown of the trash which further aids in weed control. The above steps, if done correctly, should result in lower production costs and a higher yield.

Liming at 10 to 12 tons per acre with crushed coral is generally considered the third step in field preparation. I have found this rate of lime application to produce fewer diseased corms, less off-grade corms, and increased plant vigor.

It should be also be noted that lime is to be applied <u>after</u> plowing and not before. The converse would result in an even layer of lime 12 to 16 inches deep that would not be of much benefit either to the soil or the crop.

The next operation involves the use of a tractor drawn tiller that breaks down lumps of soil and incorporates the lime. This operation prepares the soil for the fifth and last operation.

Forming of furrows for planting is the final operation and is usually done to allow for row spaces of between 3 to 4 feet. Some farmers have equipment designed for tilling and row forming in one operation, thereby lowering production costs.

Planting

Taro rarely produces true seed, so a plant by division is used and the local term, "huli", is used to indicate a planting material consisting of corm and stem tissue approximately 12 to 18 inches in length. Hulis are laid on the banks of furrows at right angles to the length of the furrows and covered by an hand drawn tiller. Covering hulis by a hand drawn tiller increases speed of the planting operation and reduces dislodging of hulis in the event of heavy rains.

Planting taro as describe above is proven to be faster than a mechanical transplanter which requires 2 people to operate (driver for tractor and planter for implement).

An item to keep in mind when planting is row spacing. Row spaces greater than 4 feet allows sunlight penetration below the taro leaf canopy. Sunlight induces weeds to germinate thus raising the cost of production.

Weed Control

The pre-emergent herbicide, Goal, will soon be registered for use in taro and will prove to be a boon for taro growers. This product suppresses weed seeds from germinating from 4 to 8 weeks. Goal may also be used as an early post-emergent directed contact spray.

Another herbicide that will be registered in the near future is Gramoxone. This will be especially beneficial in spot controlling established patches of hono-hono grass and crab-grass.

Current methods of minimizing weeds in taro includes:

1) Proper field preparation.
2) Tilling newly emerged weed seedlings with a hand drawn tiller on a periodic basis.
3) Early establishment of leaf canopy cover by frequent applications of fertilizer and adequate irrigation.

Fertilization

My experience shows that pre-plant fertilization of taro with nitrogen and potassium is not necessary or warranted possibly because of the absence of functional leaves and roots for 3 to 4 weeks. If the phosphorus level is very low, a pre-plant banded application can be made. Considering the economics of taro growing, avoid the use of dolomite, chicken manure, hydrated lime, or other costly soil amendments.

A complete fertilizer should be used for the first two months after planting with subsequent applications of 17-0-34, 21-0-32, or even 16-16-16 every 3 to 4 weeks. Avoid low nitrogen-high phosphorus analyses because money is being wasted.

Upon maturity, as indicated by maximum plant height, a switch to high potassium such as 0-0-61 promotes and maintains good starch development.

Pest Control

Taro leaf blight, a leaf and stem rot disease caused by a fungal pathogen can be devastating during wet periods. Possible effective fungicides are a combination of metalaxyl and manzate, but these are not registered for use on taro. Even if approval were to be established, there still remains the problem of physically applying the fungicides and attaining good coverage over the tall taro plants.

Slugs also damage corms and provide entry for secondary organisms to invade. Many farmers find that hilling corms or raising the soil-line over the corms minimizes the damage caused by slugs. A clean, weed free field also reduces slug populations.

Harvesting

Shrinking of the foliage indicates crop maturity and time to harvest. The corms are fully developed and should be harvested before starches convert to sugar (loli loli condition). Corms with a higher sugar content cannot be adequately used for chip processing because they develop darkened or burned edges. This condition can be alleviated to a degree by potassium fertilization.

After harvesting, corms are trimmed, washed, chlorine dipped, weighed, and bagged. At this point, the product should be delivered to a buyer with access to a chill box.

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